

REMARKS

Claims 1–20 are pending. Claims 1–20 stand rejected under 35 USC § 112, first paragraph. Claims 1–10, 12–15, and 17–19 stand rejected under 35 USC § 102(b) or (e). Claims 16, 19 and 20 stand rejected under 35 USC § 103. The Drawings and Specification are objected to.

Objection to the Drawings

The Drawings are objected to as failing to comply with 37 CFR § 1.84(p)(5) because they do not include certain reference numerals mentioned in the Specification and because they also include other reference numerals that are not mentioned in the Specification.

The Applicants respectfully direct the Examiner to MPEP § 608.01(l) which states:

In establishing a disclosure, applicant may rely not only on the description and drawing as filed but also on the original claims if their content justifies it.

The Applicants submit that the following amendments to the Drawings or to the Specification so as to make the Drawings and the Specification consistent were present in the present Application as originally filed.

- Figure 1 has been amended to replace reference numeral 52 that is located in the back waist region 38 with reference numeral 54, defined as the back end edge at page 7, line 9.
- Figures 1 and 2 have also been amended to include reference number 56 to define both waist edges as described on page 7, line 8. The paragraph bridging pages 4 and 5 has been amended for consistency.
- Figure 1 has been amended to delete reference numeral 120 for consistency with the Specification.
- With respect to reference numeral 38, the Applicants respectfully direct the Examiner to page 5, line 3 which defines the numeral. Figure 4 has also been amended to remove reference numeral 38 and the element delineated thereby to be consistent with the description in the Specification.
- With respect to reference numerals 500, 508, 510, 502, 504, 506, and 43, the last paragraph on page 17 is amended to include matter described in “Disposable Garment having an Expandable Component” as is already referenced on page 17 of the Specification as originally filed (As noted below, the last paragraph of page 17 has been amended to include a more detailed reference thereto — US Patent application Serial No. 09/481,042). This amendment adds the required reference numerals to the Specification. No new matter is added by this amendment because, the amendment merely serves to name elements that were included in the present application as originally filed.

- With respect to reference numerals 601 and 605, the last paragraph on page 9 has been amended to describe structure relating to these reference numerals. Specifically, element 605 is described as outer structure and element 601 is described as inner structure. The Applicants submit that this amendment adds no new matter because the relative positioning of the inner structure is clear from the description at page 9 in the specification as filed:

If necessary to limit heat flow between the article and the outside environment, additional insulation can be added 604 or 606 between the thermal cell actuator 603 and the outside environment to further control heat transfer.

That is, because elements 604 and 606 are placed between element 603 and the outside environment, element 605 is named outer structure. Likewise, element 601 is named inner structure because it is inboard of all other elements. The term "structure" merely serves to provide a name for an element that was present in the application as originally filed.

Given that the amendments to the Drawings and the Specification brings the present application into compliance with 37 CFR § 1.84(p)(5), the Applicants respectfully request that the Examiner reconsider and withdraw the objection to the Drawings.

Objection to the Specification

The Specification is objected to because the current status of patent applications referenced therein must be updated. Specifically, the information at lines 1-4 of page 17 should be completed. The Specification has been amended to update the status as required. That is, information more clearly identifying the patent application at page 17, lines 1-4 has been provided. The Applicants have also more clearly identified the application referred to in the paragraph at page 17, lines 22 and 23. No new matter is added by this amendment because the applications were described in sufficient detail when the application was filed to enable identification of the relevant application serial number. The paragraph beginning on page 6, line 14 was also amended to remove an incorrect application reference.

The Specification also is objected to for failure to provide antecedent basis for the subject matter described by Claim 11. Claim 11 has been amended to describe a thermal cell actuator including a Peltier cell. Support for this amendment can be found at page 15, line 28. This amendment moots the objection and the Applicants respectfully request its withdrawal.

Claim Rejections

Rejections under 35 USC § 112

Rejections under 35 USC § 112, First Paragraph

Claims 1–20 stand rejected under 35 USC § 112, first paragraph as containing subject matter which is not described in the specification in such a way to enable one of ordinary skill to make and/or use the invention. Specifically, the Office Action asserts that the description of a thermal cell actuator in the present application would not allow one of ordinary skill to make and/or use the invention because the definition thereof is unclear. The Office Action further asserts that there is no definition of the term “thermal cell actuator” beyond that given at page 8 and that there are no examples to provide clarity to the term.

The Applicants respectfully traverse the rejection and direct the Examiner to the paragraph beginning at page 8, line 20 which is reproduced below for the Examiner’s convenience.

In addition, the article of the present invention preferably comprises a thermal cell actuator. A **“thermal cell actuator”** as used herein refers to a thermal cell actuator which **actuates the performance of a useful function on the article**. Some examples of useful functions the thermal cell actuator may perform include altering the properties of at least a portion of the article or environmental conditions between the article and the wearer. **In any case, the useful function is in some way related to or caused by a reduction or increase of the temperature of the thermal cell actuator or a portion of the article.**

The Applicants respectfully submit that this paragraph clearly defines a thermal cell actuator as a component of the article that performs a useful function on the article by a reduction or increase in the temperature (i. e. heat removal or addition) of the actuator. The remainder of the application is replete with examples of such useful functions:

- maintaining a desired temperature (page 9, lines 20–23, page 19, lines 9 and 10)
- the heat produced by the thermal cell actuator may cause a material to shrink within the article, thus effect a dimensional change of at least a portion of the article (page 18, lines 20–22);
- melting of a solid can be utilized to cause a material to flow from the article to the wearer, such as a lotion or other skin treatment or other material transferred from the article to the skin to at least partially coat the wearer’s skin (page 18, lines 26–29);
- preventing the flow of materials on the article (page 19, lines 5–8);

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and so forth. The Examiner is directed to pages 18–20 for further examples of useful functions.

Also as noted below, Claims 1–3 have also been amended to more clearly describe the thermal cell actuator and to recite specific useful functions. It should also be noted that Claims 4–20 depend from Claim 1. Given these showings and amendments, the Applicants respectfully request that the rejection of Claims 1–20 under 35 USC § 112, first paragraph be reconsidered and withdrawn.

Rejection of Claim 8

Claim 8 stands rejected under 35 USC § 112, first paragraph because the claim is said not to be enabled for water vapor transmission rates of more than about 2600 g/m²/day.

Claim 8 has been cancelled so the rejection thereof is moot.

Rejections under 35 USC § 112, Second Paragraph

Rejection of Claims 1, 2 and 4–20

Claims 1, 2, and 4–20 stand rejected under 35 USC § 112, second paragraph as being indefinite. The Office Action asserts:

- The language with respect to useful function in Claims 1 and 2 is considered vague and indefinite.
- The Applicants have failed to define the claimed environment described by Claims 1 and 2.
- The terms “application of a tensile force”, “garment body” and “application of a normal force” in Claim 5 are said to lack antecedent basis.
- There is insufficient antecedent basis for the terms “action of the caregiver” and “the activation” in Claim 6.
- The term “Peltier element” in Claim 11 is unclear because it is not defined in the Specification.

The Applicants will address each of these issues in turn.

Rejection of Claims 1 and 2

Claims 1 and 2 stand rejected because the term “useful function” is considered vague and indefinite. The Office Action lists two of the many useful functions of an absorbent article but fails to consider the large number of examples of useful functions listed on pages 18 and 19 of the present application. The Applicants traverse the rejection and respectfully point out that, as is discussed below with respect to the rejection over the Glaug reference under 35 USC § 102 (b),

Claims 1 and 2 have been amended to recite a list of specific useful functions. The Applicants further submit that the list of useful functions provided on pages 18 and 19 are examples of the many possible useful functions that the heating/cooling capabilities of the claimed thermal cell actuator can accomplish. As noted above and in the amendment to Claims 1 and 2, the thermal cell actuator either removes energy (temperature decrease) or provides energy (temperature increase). Changes of energy state are well known as being able to perform useful functions. By providing the capability to effect an energy change, the claimed thermal cell actuator allows the claimed absorbent articles to perform one of the many useful functions that require such an energy change as are described in Claims 1 and 2 as amended.

Claims 1 and 2 also stand rejected because it is asserted that the Applicants have failed to define the claimed environment. Claims 1 and 2 have been amended (see discussion below with respect to the rejection under 35 USC § 102 (b) over the Glaug reference) to describe a thermal cell actuator that adds or removes heat on activation and to recite specific useful functions. This amendment removes any reference to the environment between the article and a wearer so the rejection is moot.

Given that the Applicants amendment to Claims 1 and 2 describing a thermal cell actuator that adds or removes heat on activation and reciting specific useful functions moots the rejection under 35 USC § 112, second paragraph, they request that the Examiner reconsider and withdraw the rejection thereof. Given that Claims 4, 7, 9, 10 and 12–20 depend from Claim 1, having all the limitations of the base claim, the Applicants further submit that the rejection under 35 USC § 112, second paragraph with respect to these claims has also been overcome and respectfully request the withdrawal thereof.

Rejection of Claim 5

Claim 5 stands rejected based on the assertion that the terms “application of a tensile force”, “garment body” and “application of a normal force” lack antecedent basis. Claim 5 has been amended to provide the required antecedent basis. The Applicants respectfully direct the Examiner to the paragraph beginning at page 8, line 27 which provides support for the amendment. Given that the amendment provides the proper antecedent basis, the Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 5 under 35 USC § 112, second paragraph.

Rejection of Claim 6

Claim 6 stands rejected as having insufficient antecedent basis for the terms “action of the caregiver” and “the activation”. The last paragraph on page 17 has been amended to include the following:

The activation force may also be provided by a caregiver who peels a tab exposing an opening in the actuator.

Support for this amendment can be found in Claim 6 as filed. Given that the Specification has been amended to provide antecedent basis for Claim 6, the Applicants respectfully that the Examiner reconsider and withdraw the rejection thereof under 35 USC § 112, second paragraph.

Rejection of Claim 11

Claim 11 stands rejected because term “Peltier element” in Claim 11 is unclear because it is not defined in the Specification. Given that Claim 11 has been amended, as noted above, to recite the term Peltier cell as is used in the Specification and that there are no art rejections with respect to this claim, the Applicants respectfully request the reconsideration of the rejection, its withdrawal and the allowance of Claim 11.

Rejections Under 35 USC § 102

Rejection Over Glaug (US 5,797,892)

Claims 1–4, 7, 9, 12, and 13 stand rejected under 35 USC § 102(b) as being anticipated by Glaug, et al. (US 5,797,892). The Office Action asserts that the Glaug reference discloses an absorbent article comprising a backsheet, a liquid pervious topsheet joined to the backsheet, an absorbent core disposed between the topsheet and a thermal cell actuator. With respect to specific claims, the Office Action::

- **Claim 2:** Asserts that the Glaug reference further discloses a triggering mechanism whereby a non-urine based signal within the article causes the thermal cell actuator to add or remove heat from at least a portion of the absorbent article.
- **Claim 3:** Admits that the Glaug reference fails to disclose an electrically powered thermal cell actuator. However, the Office Action goes on to assert that the claim is a product by process claim and that the claim is unpatentable because Glaug discloses a prior product made by a different process.

- **Claim 4:** Asserts that the Glaug reference discloses an absorbent article that performs a function between the backsheet of the article and the skin of a wearer in response to a change in relative humidity, moisture or temperature.
- **Claim 7:** Asserts that the Glaug reference discloses an absorbent article where a thermal cell actuator controls humidity or temperature.
- **Claims 9 and 10:** The Office Action directs the Applicants to col. 9, lines 45–52.
- **Claim 12:** Asserts that the Glaug reference discloses an absorbent article that provides a constant temperature during use of about 15-25 degrees Celsius.
- **Claim 13:** Asserts that the Glaug reference discloses a thermal cell actuator that is not in contact with a wearer's skin.

The Applicants will respond to each rejection in turn.

With respect to Claims 1, 2 and 3, the claims have been amended to describe the thermal cell actuator as adding or removing heat when actuated and to recite the following list of useful functions resulting from the addition or removal: maintaining the article at a predefined temperature, maintaining relative humidity in a volume between a wearer and the article when the article is worn, melting a material disposed on the article, changing a mechanical property of a component of the article, changing the breathability of a component of the article, and changing the vapor pressure of a material disposed on the article. Support for this amendment can be found at:

- adding or removing heat: Claims 1, 2 and 3 as originally filed, page 8, lines 24–26 (adding or removing heat causes an increase or reduction in temperature), page 9, lines 3–13;
- maintaining a predefined temperature: page 9, lines 20–23;
- controlling relative humidity: page 20, lines 13–16;
- melting a material: page 18, lines 26–29 and page 22, lines 26–28;
- changing a mechanical property: page 19, lines 22–29 and page 20, lines 25–28;
- changing breathability: page 21, lines 22–30; and
- changing vapor pressure: page 22, lines 10–12.

Pointing out that, in order to anticipate, a reference must disclose each and every claim limitation, the Applicants respectfully submit that the Glaug reference fails to anticipate Claim 1 as amended for at least the following reasons:

- The Glaug reference fails to teach or disclose maintaining an article at a predetermined temperature. The Applicants respectfully submit that the whole Glaug reference is directed to **changes** that would be noticeable to a wearer upon urination as an aid in toilet training. Specifically, the reference only discusses a temperature **change** member and temperature **change** from col. 8, line 36 to col. 11, line 25. Nothing in the discussion therein is directed to maintaining the article at a predefined temperature. Clearly, a reference directed to a change in temperature cannot anticipate a limitation of maintaining temperature.
- With respect to relative humidity maintenance, the only reference to humidity in the Glaug reference is at col. 14, lines 18-21 which discusses conditions in a test method for measuring temperature change on wetting.
- The term “melt” is not even used in the Glaug reference.
- With respect to changes in mechanical properties due to the thermal cell actuator, the only mention in the Glaug reference that could even construed to be a change is a mechanical property is at col. 11, lines 5 and 6 which mentions swelling of temperature change particles upon wetting. Clearly such swelling is not a change in a mechanical property of a different component of the article as described in Claims 1 and 2 as amended.
- Since the Glaug reference is directed to wetness indication as a training aid, there is no mention of breathability so the reference fails to teach or disclose changes in breathability.
- Similarly, the Glaug reference fails to mention changes in vapor pressure.

Given that the Applicants have shown that the Glaug reference fails to anticipate Claim 1 as amended and given that Claims 5, 6, and 20 depend from Claim 1, having all the limitations of the base claim, the Applicants respectfully request that the Examiner reconsider and withdraw the rejection of these claims under 35 USC § 102(b) over the Glaug reference.

With respect to the rejection of Claims 2 and 3, the Applicants respectfully point out that they have been amended in the same manner as Claim 1. Therefore, the Glaug reference fails to anticipate Claims 2 and 3 for the reasons discussed above with respect to Claim 1 and the Applicants respectfully request reconsideration of the rejection and withdrawal thereof.

Regarding Claims 4 and 7, the Applicants point out that Claims 4 and 7 depend from Claim 1, having all the limitations of the base claim. The Applicants further point out that they have

shown above how the Glaug reference fails to anticipate Claim 1 as amended. Therefore, the Applicants respectfully request reconsideration of the rejection of Claims 4 and 7 under 35 USC § 102 (b) and withdrawal thereof.

Claims 9 and 10 also depend from Claim 1. Claim 10 has been amended to depend from Claim 9 and to be consistent with the disclosure in the paragraph bridging pages 13 and 14. Since these claims depend from Claim 1 and the Applicants have shown above that the Glaug reference fails to anticipate Claim 1, the Applicants respectfully request that the rejection of Claims 9 and 10 over the Glaug reference be reconsidered and withdrawn.

Again, Glaug reference fails to anticipate Claim 12 for the reasons discussed above with respect to the amendment to Claim 1 from which it depends. In addition, the Glaug reference doesn't even mention maintaining the article within the claimed temperature range (15-25 degrees Celsius). Instead, the reference, at the cited column and lines, discusses a temperature **change** of between 2.8 and 13.8 degrees Celsius (i.e. there is no overlap of temperature between the claimed range and the range cited in the Glaug reference in addition to no teaching of maintenance of temperature as discussed above with respect to the amendment to Claim 1). Therefore, the Applicants respectfully request the reconsideration and withdrawal of the rejection of Claim 12.

Regarding Claim 13, it depends from Claims 1 and 12, having all the limitations of both the parent and the grandparent. Given that the Applicants have shown above that both Claims 1 (as amended) and 12 are independently novel over the Glaug reference. That is, the Glaug reference fails to anticipate Claim 1 as amended and fails to anticipate Claim 12 even if Claim 1 would not have been amended. Since Claim 13 depends from 2 claims, neither of which is anticipated by the Glaug reference, the Applicants respectfully request that the rejection of the claim be withdrawn.

Rejection Over Hasse (US 5,769,832)

Claims 1, 5, 6, 14, 15, and 19 stand rejected under 35 USC § 102 (b) as being anticipated by Hasse (US 5,769,832). The Office Action asserts that the Hasse patent discloses an absorbent article comprising a topsheet, a backsheet, an absorbent core disposed between the topsheet and the backsheet and a thermal cell actuator as set forth at col. 6, lines 1-9. With regard to other claims, the Office Action:

- directs the Applicants to col. 2, lines 36-46 regarding Claims 5, 6 and 15; and
- directs the Applicants to col. 2, lines 3-46 and col. 19, lines 20-31 regarding Claims 14 and 19.

The Applicants direct the Examiner to Claim 1 as amended and submit that the Hasse patent discloses neither a thermal cell actuator which adds heat to or removes heat from the absorbent article upon actuation nor any of the various claimed functions. Rather, the Hasse patent discloses fastening members with a plurality of perfume-filled microcapsules. When the microcapsules rupture, the perfume is released to the surrounding environment. In other words, the microcapsules provide a barrier for volatilization of the perfume prior to rupture, hardly a thermal cell actuator. Since the Hasse patent fails to disclose each and every limitation of Claim 1 as amended, the patent fails to anticipate Claim 1. Given this failure to anticipate, the Applicants respectfully request withdrawal of the rejection of Claim 1 under 35 USC § 102(b) over this patent. Since Claims 5, 6, 14, 15 and 19 all depend from Claim 1, having all the limitations of the base claim the Applicants respectfully request withdrawal of the rejection of these dependent claims.

With respect to the additional citations directed toward rejecting Claims 5, 6, 14, 15 and 19, the Applicants further point out, in addition to the discussion above:

- The Hasse patent, at col. 2, lines 36-46 fails to disclose any kind of force that activates a thermal cell actuator causing addition or removal of heat to perform a function as described variously in Claims 5, 6 and 15.
- With respect to the rejection of Claims 14 and 19 based on the matter cited at col. 2, lines 3-46 and col. 19, lines 20-31 of the Hasse patent, the Applicants respectfully point out that Claim 19 has been amended to be consistent with the amendment to Claim 1. The Applicants further point out that both Claims 14 and Claim 19 as amended are directed to reduction of the vapor pressure of a material by condensing it into a liquid (Claim 14) or to changing the vapor pressure by activation of the thermal cell actuator. The Applicants submit that mere rupture of the microcapsules described in the Hasse patent does not change the vapor pressure of the perfume materials contained therein. Specifically: 1) perfume vapor pressure is a function of temperature and the composition of the perfume and 2) the walls of the microcapsules serve to prevent that portion of the perfume that is in vapor form at a given temperature from diffusing into the surrounding environment. In other words, the only way to change vapor pressure of a given composition is to change the temperature and there is no disclosure of temperature change when the microcapsules are ruptured as described in the Hasse patent.

Therefore, even if the amendment to Claim 1 is ignored, the Applicants have shown that the Hasse reference fails to anticipate any of Claims 5, 6, 14, 15 and 19 and that the rejection of these claims under 35 USC § 102 (b) over the Hasse patent should be withdrawn.

Rejection Over Roe, et al. (US 6,407,308)

Claims 1, 8, 17 and 18 stand rejected under 35 USC § 102 (e) as being anticipated by Roe, et al. (US 6,407,308). The Office Action asserts that the Roe, et al. patent discloses an absorbent article comprising a backsheet, a topsheet, an absorbent core disposed between the backsheet and the topsheet and, using col. 13, line 57–col. 14, line 45 as support, a thermal cell actuator. Regarding dependent claims, the Office Action:

- states that the Roe, et al. patent discloses a backsheet with a WVTR of no more than about 2600 g/m²/day as described in Claim 8 of the present application because the Curro patent (US 5,865,823) is incorporated by reference therein; and
- asserts that the Roe, et al. patent, at col. 13, line 57–col. 14, line 17, discloses a thermal cell actuator that changes a dimension of a component of the article or a physical property of a component of the article as described in Claim 17.

In response the Applicants respectfully direct the Examiner to Claim 1 as amended and submit that the actuator 70 described in the Roe, et al. patent neither adds nor removes heat on activation as described in Claim 1 as amended. Rather, the actuator 70 described therein performs a responsive function (col. 13, lines 57–61 and col. 14, lines 39–42). At col. 14, lines 14–17 the Roe, et al. patent gives examples of responsive functions including: expansion of a compressed device, rotation of a twisted device, a gel that moves as it changes phases, coating or treatment of skin or feces, inhibition of an enzyme and adjustment of pH. The Applicants submit that none of the functions listed at col. 14, lines 14–17 anticipate the useful functions described in Claim 1 as amended. Given that the Roe, et al patent fails to teach heat addition or removal as described in Claim 1 as amended and that the responsive functions described in the Roe, et al. patent do not anticipate the list of useful functions as also described in Claim 1 as amended, the Applicants respectfully submit that the Roe, et al. patent fails to anticipate Claim 1 as amended. The Applicants further point out that Claims 17 and 18 all depend from Claim 1, having all the limitations of the base claim. Therefore, the Roe, et al. patent is also not anticipatory for these dependent claims and the Applicants respectfully request withdrawal of the rejection thereof.

The Office Action also asserts that the incorporation of the Curro patent into the Roe, et al. patent makes Roe, et al. anticipatory of Claim 8. As noted above, Claim 8 has been cancelled so the rejection thereof is moot.

With respect to the use of the matter discussed in the Roe, et al. patent at col. 13, line 57 to col. 14, line 17 as support for the rejection of Claims 17 and 18, the Applicants point out that Claim 17 has been amended to be consistent with the amendment to Claim 1 (support page 19,

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lines 22–29 and page 22, lines 26–28). The Applicants respectfully point out that the cited portion of the Roe, et al. patent does not describe mechanical property changes and the amendment to the claim moots any rejection based on a description of a dimensional change. Therefore, the Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 17 and 18 over Roe, et al. col. 13, line 57–col. 14, line 17.

Rejections Under 35 USC § 103

Rejection of Claim 16

Claim 16 stands rejected under 35 USC § 103 as being unpatentable over Glaug, et al. (US 5,797,892). While admitting that the Glaug reference fails to teach or disclose maintaining a constant temperature for a period of at least one hour, the Office Action goes on to assert that “where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges requires only ordinary skill in the art.”

The Applicants respectfully submit that the Glaug reference fails to disclose the general conditions of Claim 16 and, therefore, the Office Action fails to establish a *prima facie* case of obviousness. Specifically, the Applicants direct the Examiner to the discussion above regarding the rejection, under 35 USC § 102, of Claim 12 (from which Claim 16 depends) over the Glaug reference. As discussed therein, the Glaug reference doesn’t even mention maintaining the article within the claimed temperature range (15-25 degrees Celsius). Instead, the reference discusses a temperature **change** of between 2.8 and 13.8 degrees Celsius. In other words, the Glaug reference fails to teach the general condition of temperature maintenance. Rather, it teaches temperature change. The Applicants respectfully submit that teaching a change in temperature, if anything, would lead one of ordinary skill in the art away from the invention of Claim 16 and submit that the Office Action has failed to establish a *prima facie* case of obviousness. Given that the Applicants have shown that the Glaug reference fails to make the invention of Claim 16 obvious, they respectfully request withdrawal of the rejection of Claim 16 thereover.

Rejection of Claims 19 and 20

Claims 19 and 20 stand rejected under 35 USC § 103 as being unpatentable over Glaug as applied to Claims 1–4, 7, 9, 10, 12 and 13 above and further in view of Hasse (US 5,769,832). The Office Action:

- States that the difference between Glaug and Claim 19 is the provision that the thermal cell actuator affects the environment between the backsheet of the article and the skin of the wearer by decreasing malodorous vapors or increasing fragrance. The Office Action goes on to assert that the Hasse patent teaches a thermal cell actuator that affects the

environment between the backsheet of the article and the skin of the wearer by decreasing malodorous vapors or increasing fragrance as set forth in the abstract and concludes that it would have been obvious to modify the absorbent article of Glaug to employ the microcapsules of Hasse because such modification would allow consumers to avoid exposure to body malodor upon removal from a wearer as taught by Hasse in col. 1, line 62–col. 2, line 7.

- Asserts that the Glaug reference discloses an absorbent article with a temperature of less than about 25 degrees Celsius as set forth in col. 9, lines 3–5.

The Applicants direct the Examiner to Claim 19 as amended and respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness (MPEP § 2143) with respect to Claim 19 as amended and Claim 20 for at least the following reasons:

- There is no motivation to combine the references. The asserted reason of avoiding exposure to body malodor fails because the Glaug reference is directed to providing a signal upon urination. The Applicants respectfully submit that there is nothing in the Glaug reference that would lead one of ordinary skill in the art to seek art in the fragrance area in order to solve a problem related to signaling a urination event.
- A device combining the teachings of the Glaug reference and the Hasse patent would not provide an odor when a wearer urinates (i.e. a device combining the teachings would not reasonably be expected to be successful). Specifically, a device combining the teachings would not be successful because, in order to provide a signal on urination the Glaug training aid must be positioned in the crotch where urine is deposited (Figure 1) to be operable while Hasse's microcapsules must be positioned adjacent the tapes in order to be ruptured during a diaper change so odors can be a signal of the need to change but are masked during the change (Fig 2 and col. 2, lines 3-7).
- The combination of references fails to teach all of the limitations of Claim 19 as amended. Specifically, as noted above with respect to the rejection of Claim 19 under 35 USC § 102 over the Hasse patent, the Hasse patent fails to teach or disclose changing vapor pressure of the encapsulated perfume and, because it is directed to a signal means, there is not even a mention of vapor pressure in the Glaug reference. Therefore, a device combining the references fails to teach or disclose a thermal cell actuator that, when activated, provides a function of changing the vapor pressure of a component disposed on the article.

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Net, the Applicants have shown that the cited combination fails all three prongs of the test for establishing a *prima facie* case of obviousness with respect to Claim 19 as amended. The Applicants further point out the Claim 20 depends from Claim 19, having all the limitations of the base claim. Given this showing, the Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 19 and 20 under 35 USC § 103 over the combination of Glaug and Hasse.

SUMMARY

The Drawings, Specification and Claims have been amended to more clearly define the inventions described thereby. The Applicant respectfully requests reconsideration of the rejections, their withdrawal, and that all of the claims be allowed. No new matter has been added by the amendment. Issuance of a Notice of Allowance at an early date is earnestly solicited.

Respectfully submitted,

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AMENDED CLAIMS MARKED UP TO SHOW CHANGES
SUBMITTED IN ACCORDANCE WITH 37 CFR 1.121(c)(1)(ii)
IN RESPONSE TO OFFICE ACTION OF JULY 30, 2002

CLAIMS

1. (Amended) An absorbent article comprising:
 - (1) a backsheet;
 - (2) a liquid pervious topsheet joined to the backsheet;
 - (3) an absorbent core disposed intermediate to the topsheet and the backsheet; and
 - (4) a thermal cell actuator [capable of adding or removing] which adds or removes heat from at least a portion of the absorbent article [to perform a useful function on the article environment between the article and a wearer] upon actuation so as to result in a useful function selected from the group consisting of:
 - a) maintaining the article at a predefined temperature,
 - b) maintaining relative humidity in a volume between a wearer and the article when the article is worn
 - c) melting a material disposed on the article,
 - d) changing a mechanical property of a different component of the article,
 - e) changing the breathability of a component of the article, and
 - f) changing the vapor pressure of a material disposed on the article.
2. (Amended) An absorbent article comprising:
 - (1) a backsheet;
 - (2) a liquid pervious topsheet joined to the backsheet;
 - (3) an absorbent core disposed intermediate to the topsheet and the backsheet;
 - (4) a thermal cell actuator [capable of adding or removing] which adds or removes heat from at least a portion of the absorbent article [to perform a useful function on the article environment between the article and a wearer] upon actuation so as to result in a useful function selected from the group consisting of:
 - a) maintaining the article at a predefined temperature,
 - b) maintaining relative humidity in a volume between a wearer and the article when the article is worn
 - c) melting a material disposed on the article,
 - d) changing a mechanical property of a different component of the article,
 - e) changing the breathability of a component of the article, and
 - f) changing the vapor pressure of a material disposed on the article; and

(5) a triggering mechanism connected with the thermal cell actuator whereby a non-urine based signal within the article causes the thermal cell actuator to add or remove heat from at least a portion of the absorbent article.

3. (Amended) An absorbent article comprising:

- (1) a backsheet;
- (2) a liquid pervious topsheet joined to the backsheet;
- (3) an absorbent core disposed intermediate to the topsheet and the backsheet; and
- (4) an electrically powered thermal cell actuator [capable of adding or removing] which adds or removes heat from at least a portion of the absorbent article upon actuation so as to result in a useful function selected from the group consisting of:
 - a) maintaining the article at a predefined temperature,
 - b) maintaining relative humidity in a volume between a wearer and the article when the article is worn
 - c) melting a material disposed on the article,
 - d) changing a mechanical property of a different component of the article,
 - e) changing the breathability of a component of the article, and
 - f) changing the vapor pressure of a material disposed on the article.

4. (Amended) The absorbent article of claim 1 wherein the thermal cell actuator [performs a] the function is performed at location between the backsheet of the article and the skin of the wearer in response to a change in relative humidity, moisture, or temperature.

5. (Amended) The absorbent article of claim 1 wherein the thermal cell actuator performs [a] the function in response to the application of a tensile force by a caregiver to extend a portion of [the] a garment body, or in response to the application of a normal force to compress a portion of [a] the garment body by a caregiver.

Please cancel Claim 8 without prejudice.

10. (Amended) The absorbent article of claim [1] 2 wherein the thermal cell actuator performs an endothermic reaction using a reactant [of the exothermic reaction is]selected from the group: $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$, $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$, $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$, NH_4NO_3 , KCl , NH_4Cl , KNO_3 , NaNO_3 , KCNS , NH_4CNS , Urea, $\text{NaCH}_3\text{COO} \cdot 3\text{H}_2\text{O}$.

11 (Amended) The absorbent article of claim 1 wherein the thermal cell actuator includes a Peltier [Element] cell.

17. (Amended) The absorbent article of claim 1 wherein the thermal cell actuator changes a [dimension of a component of the article or a physical] mechanical property of a different component of the article.
19. (Amended) The absorbent article of claim 1 wherein activation of the thermal cell actuator [effects the environment between the backsheet of the article and the skin of the wearer by decreasing malodorous vapors or increasing fragrance] results in a change in the vapor pressure of a material disposed on the article.

VERSION MARKED UP TO SHOW CHANGES
SUBMITTED IN ACCORDANCE WITH 37 CFR 1.121(b)(1)(iii)
IN RESPONSE TO OFFICE ACTION OF JULY 30, 2002

IN THE SPECIFICATION

Please amend the paragraph bridging pages 4 and 5 as follows:

Figure 1 is a plan view of the diaper 20 of the present invention in a flat-out, state with portions of the structure being cut-away to more clearly show the construction of the diaper 20. The portion of the diaper 20 which faces the wearer is oriented towards the viewer. As shown in Figure 1, the diaper 20 preferably comprises a liquid pervious topsheet 24; a liquid impervious backsheet 26; an absorbent core 28 which is preferably positioned between at least a portion of the topsheet 24 and the backsheet 26; side panels 30; elasticized leg cuffs 32; an elastic waist feature 34; and a fastening system generally designated 40. The diaper 20 is shown in Figure 1 to have a first waist region 36, a second waist region 38 opposed to the first waist region 36 and a crotch region 37 located between the first waist region 36 and the second waist region 38. The periphery of the diaper 20 is defined by the outer edges of the diaper 20 in which longitudinal edges 50 run generally parallel to the longitudinal centerline 100 of the diaper 20 and end edges [52] 56 run between the longitudinal edges 50 generally parallel to the lateral centerline 110 of the diaper 20.

Please amend the paragraph beginning at line 14 of page 6 as follows:

In any case, at least a portion of the backsheet has low breathability, specifically has a water vapor transmission rate, WVTR, of less than about 2600 g/m²/day. The portion of the backsheet with low WVTR may coincide with at least a portion of the absorbent core. [A detailed description of WVTR can be found in PCT Application No. WO 01/97733, published on December 27, 2001 and entitled *Disposable Absorbent Article Having Low Rewet and a Reduced Evaporation from the Core Through the Topsheet* which is hereby incorporated by reference.]

Please amend the last paragraph on page 9 as follows:

In certain preferred embodiments, the heat flow is to or from the wearer and the thermal cell actuator 603 while heat flow with the environment outside the diaper may be controlled as shown in Figure 5. If necessary to limit heat flow between the article and the outside environment, additional insulation can be added 604 or 606 between the thermal cell actuator 603 and the outside environment to further control heat transfer. Such insulation can be added either disposed between outer structure 605 and actuator 603 as at 604 or disposed on outer structure 605 as at 606 so as to be further outboard of inner structure 601. Suitable examples of heat insulation layers are typically porous materials with entrained air such as high loft nonwovens, open or closed cell foams, cellulose waddings, and the like.

Please amend the paragraph bridging pages 16 and 17 as follows:

Further, the thermal cell actuator may be permanently joined to the article or removable therefrom. The thermal cell actuator may be joined or placed in contact with any portion of the article including but not limited to a location adjacent to the topsheet 24 or backsheet 24 or between the topsheet and backsheet. A removable thermal cell actuator may be constructed either by including frangible bonds to facilitate thermal cell actuator removal from the article or by attaching the thermal cell actuator to the article with separable fasteners, including pressure sensitive adhesive fasteners, mechanical fasteners, hook and loop fasteners, interlocking fasteners, or any other suitable fasteners. Alternatively, the article may include a pocket 300 or other structure into which the thermal cell actuator may be placed, one example of which is shown in Figure 3. In such embodiments, it can be used as an Active External Change Aid Device, as disclosed in co-pending U.S. Application Serial Number [] 09/778,687, entitled Active Change Aids for External Articles, filed in the names of Kline, et al. on February 7, 2001, which is incorporated herein by reference. Removable thermal cell actuators may be constructed in various forms, including small packets in which the user fills a bladder with hot (or cold) water or other fluid, solid, or gel material and attaches it to the article in the region to be heated or cooled.

Please amend the last paragraph on page 17 as follows:

Force based triggering mechanisms may include, for example, application of a normal force or a tensile force to a structure. The application of the force may cause at least one layer of a structure 220 to rupture or become opened at aperture 222, thus exposing at least two reactants to each other 215 (and said reactants create [and] an endothermic or exothermic effect as they react with each other) as seen in Figure 4. A mechanical activator 502 in the form of an elongated strip, rod, or the like preferably extends from structure 220 to the inner surface of secondary topsheet 43

to a second retention point. As illustrated and described herein, activator 502 is formed from a substantially inextensible material, or from a material having an extensibility that is significantly lower than the extensibility either of secondary topsheet 43. Activator 502 is connected at one end 504 thereof with secondary topsheet 43 by a suitable second retention point, such as by adhesive layer 506, or by heat or ultrasonic sealing, friction or the like, so that end 504 of activator 502 is firmly and securely held by secondary topsheet 43. The opposite end 508 of activator 502 is connected with structure 220 by a releasable connection arrangement, such as by a pressure-sensitive adhesive layer 510, or the like. Additionally, end 508 of activator 502 has a sufficiently large area to define a cover portion that completely overlies and surrounds aperture 222 provided in structure 220. The application of tension to the garment results in relative movement between the first retention point of structure 220 and other diaper structure 44, defined by adhesive layer or spot 500, and the second retention point of activator 502 and secondary topsheet 43. The activation force may also be provided by a caregiver who peels a tab exposing an opening in the actuator. Example structures which trigger under normal loads are included in previously referenced U.S. Patents 4,462,224; 5,792,213; 5,545,197; 5,423,996; 5,552,075; and 5,650,090, all of which are incorporated herein by reference. Example structures which trigger under tension loads are included in [U.S.] US Patent No. 5,520,274 and pending US [Case Disposable Garment Having an Expandable Component] Application Serial No.09/481,042 entitled Disposable Garment Having an Expandable Component, filed in the name of Wise, et al. on January 11, 2000. Alternatively, the force application may act to operate a switch which turns on or off an electrically-based thermal cell actuator – the switch could react to normal loads (as a typical pushbutton) or tensile loads (as a typical pull-chain on a light fixture). Properties measured by sensors may include temperature, humidity, concentration of a chemical (such as concentration of urine in the absorbent core or in vapor phase in the environment between the article and wearer), or pH.

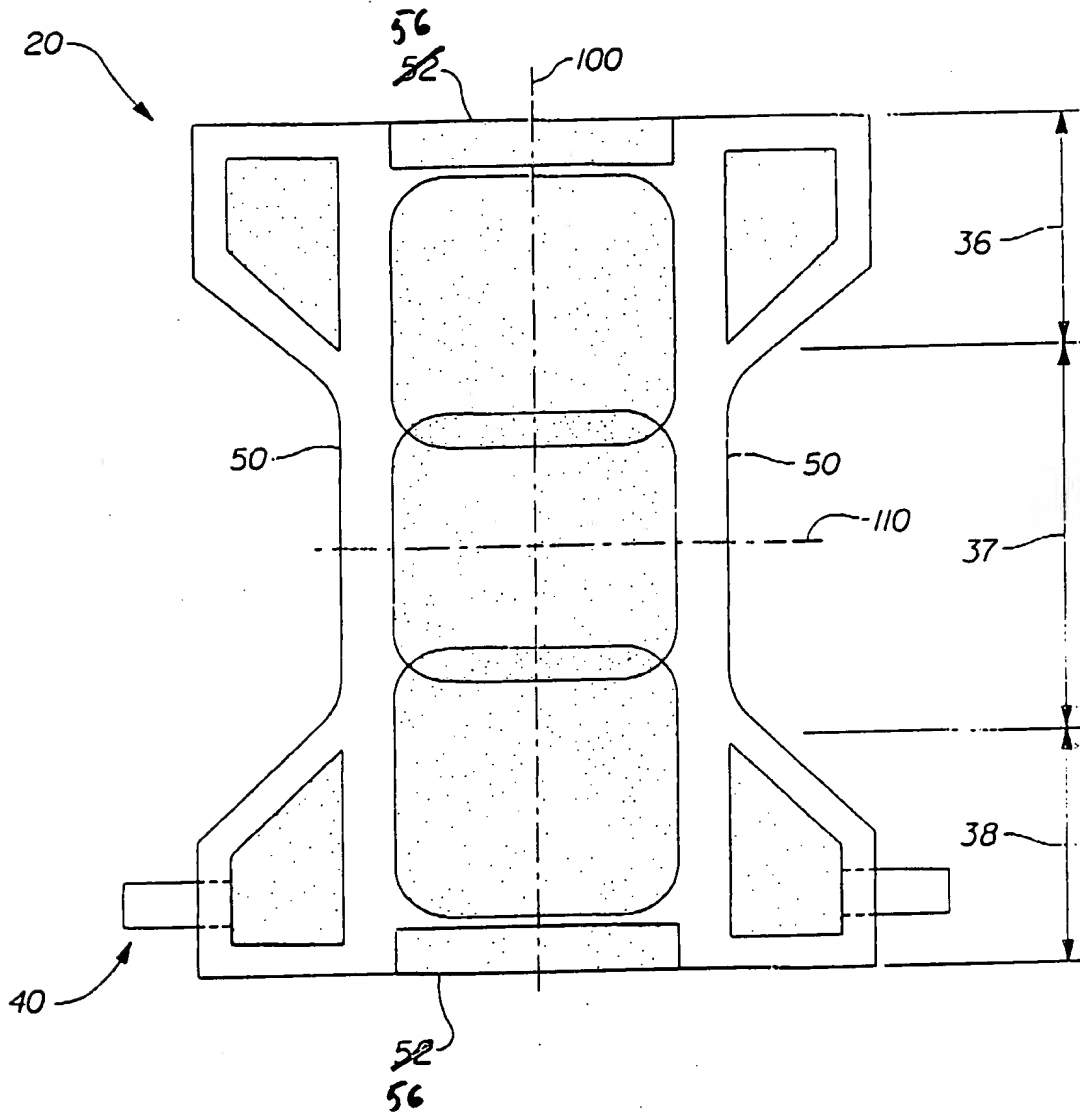


Fig. 2

